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DFS TEST REPORT (Validation Test)

REPORT NO.: RF120113E07B-2

MODEL NO.: FXE2000-G

FCC ID: PQRFXE2000-G

RECEIVED: Jan. 30, 2013

TESTED: Feb. 22, 2013

ISSUED: Feb. 22, 2013

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1. CERTIFICATION

PRODUCT: Wireless LAN Adapter
BRAND NAME: CONTEC
MODEL NO.: FXE2000-G
TEST SAMPLE: R&D SAMPLE
APPLICANT: Contec Co., Ltd.
TESTED: Jan. 30 to Feb. 22, 2013
STANDARDS: FCC Part 15, Subpart E (Section 15.407)
FCC 06-96

The above equipment (Model: FXE2000-G) has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and was in compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

2. EUT INFORMATION

2.1 OPERATING FREQUENCY BANDS AND MODE OF EUT

Table 1: Operating frequency bands and mode of EUT.

Operational Mode	Operating Frequency Range	
	5250~5350MHz	5470~5725MHz
Master	✓	✓
Slave without radar detection	✓	✓

2.2 EUT SOFTWARE AND FIRMWARE VERSION

Table 2: The EUT software/firmware version.

No.	Product	Model No.	Software/Firmware Version
1	Wireless LAN Adapter	FXE2000-G	1.03.06

2.3 EUT S/N NUMBERS

Table 3: The EUT S/N numbers.

No.	Device function	Model No.	S/N numbers
1	Master	FXE2000-G	S/N: BDYMG69000285
2	Slave	FXE2000-G	S/N: BDYMG69000288



3. TEST & SUPPORT EQUIPMENT LIST

3.1 TEST INSTRUMENTS

Table 1: Test instruments list.

DESCRIPTION & MANUFACTURER	MODEL NO.	BRAND	CALIBRATED DATE	CALIBRATED UNTIL
R&S Spectrum analyzer	FSP40	R&S	May 09, 2012	May 08, 2013
Signal generator	8645A	Agilent	Aug. 24, 2012	Aug. 23, 2013
Oscilloscope	TDS 5104	Tektronix	Mar. 08, 2013	Mar. 07, 2014

3.2 DESCRIPTION OF SUPPORT UNITS

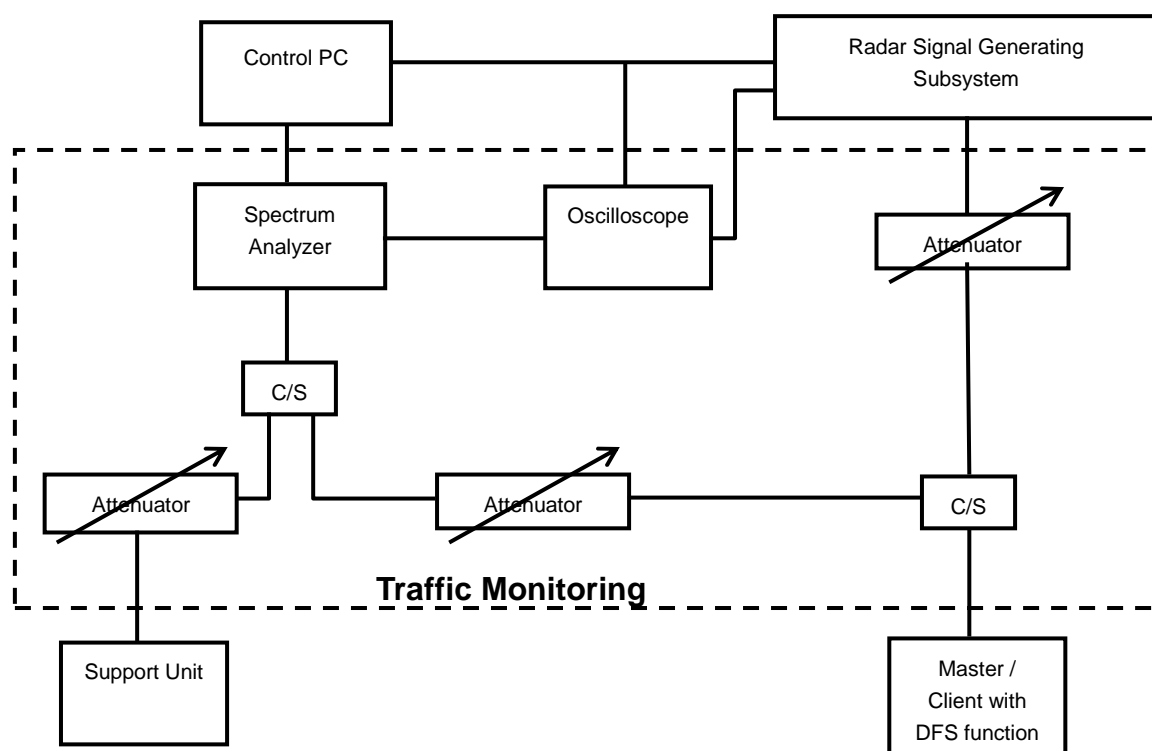
This EUT was functioned as a Master & Slave device during the DFS test.

4. TEST PROCEDURE

4.1 BVADT DFS MEASUREMENT SYSTEM:

A complete ADT DFS Measurement System consists of two subsystems: (1) the Radar Signal Generating Subsystem and (2) the Traffic Monitoring Subsystem. The control PC is necessary for generating the Radar waveforms. The traffic monitoring subsystem is specified to the type of unit under test (UUT).

Conducted setup configuration of ADT DFS Measurement System



The test transmission will always be from the Master Device to the Client Device. While the Client device is set up to associate with the Master device and play the MPEG file (6 $\frac{1}{2}$ Magic Hours) from Master device, the designated MPEG test file and instructions are located at:

<http://ntiacsd.ntia.doc.gov/dfs/>.

5. TEST RESULTS

5.1 SUMMARY OF TEST RESULT

Clause	Test Parameter	Remarks	Pass/Fail
15.407	Channel Move Occurred	Applicable	Pass

5.2 TEST PROCEDURE

Step 1 . Set EUT into Channel 100 (5500MHz)

Step 2. Waiting for the end of the CAC time, launch Radar type1 on Channel 100 ,

Step 3 · When the EUT detector the radar at channel and move to channel 104, observed the message on the console information and find the signal switch off at channel 100 on the spectrum analyzer

Step 4 · EUT link into Channel 104 (5520MHz) · waiting for the end of the CAC time, launch Radar type1 on Channel 104.

Step5 · When the EUT detector the radar at channel and move to channel 108, observed the message on the console information and find the signal switch off at channel 104 on the spectrum analyzer.

Step6· EUT link into Channel 108 (5540MHz) · waiting for the end of the CAC time, launch Radar type1 on Channel 108.

Step7 · When the EUT detector the radar at channel and move to channel 112, observed the message on the console information and find the signal switch off at channel 108 on the spectrum analyzer.

Step8· EUT link into Channel 112 (5560MHz) · waiting for the end of the CAC time, launch Radar type1 on Channel 112.

Step9 · When the EUT detector the radar at channel and move to channel 116, observed the message on the console information and find the signal switch off at channel 112 on the spectrum analyzer.

Step10、EUT link into Channel 116 (5580MHz) , waiting for the end of the CAC time, launch Radar type1 on Channel 116.

Step11、When the EUT detector the radar at channel and move to channel 132, observed the message on the console information and find the signal switch off at channel 116 on the spectrum analyzer.

Step12、EUT link into Channel 132 (5660MHz) , waiting for the end of the CAC time, launch Radar type1 on Channel 132.

Step13、When the EUT detector the radar at channel and move to channel 136, observed the message on the console information and find the signal switch off at channel 132 on the spectrum analyzer.

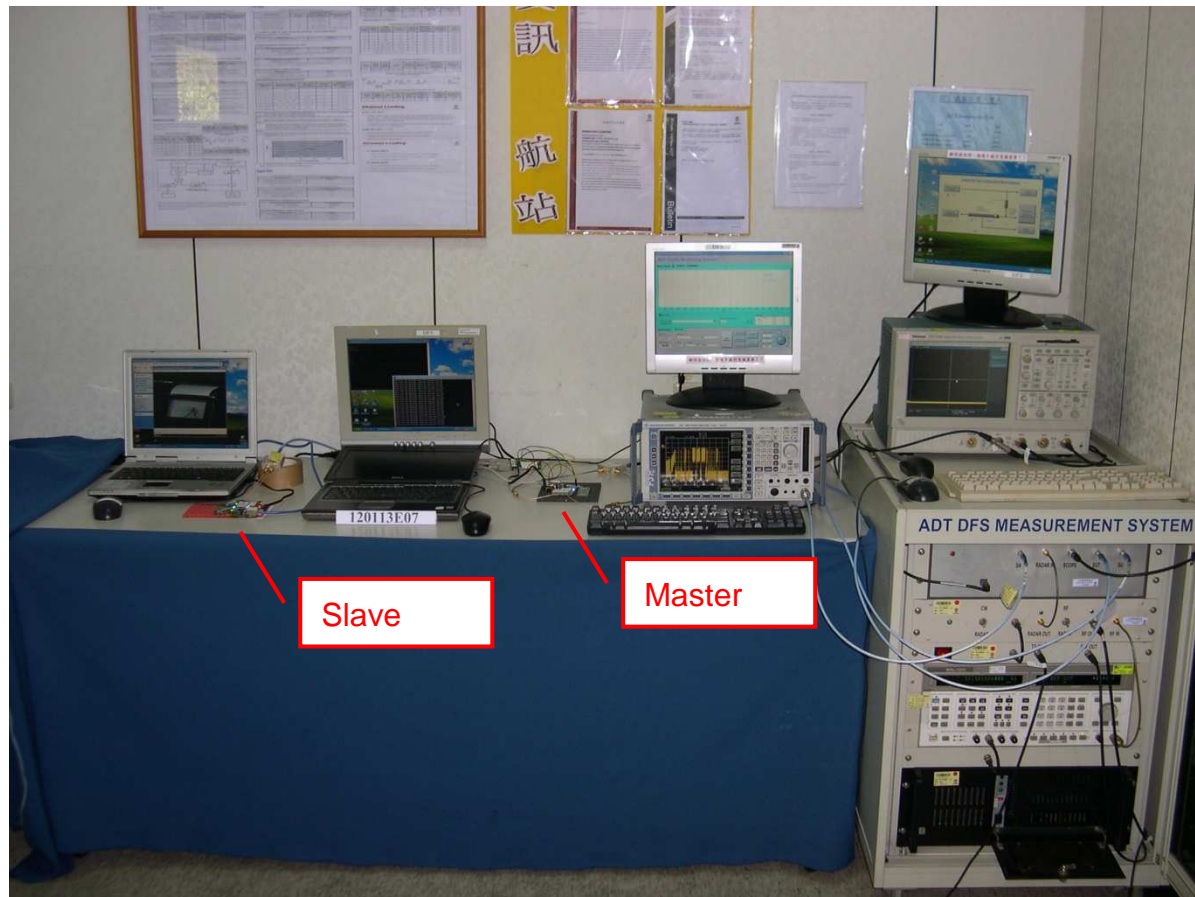
5.2 TEST RESULT

The test results are channel move occurred after detecting a radar signal.

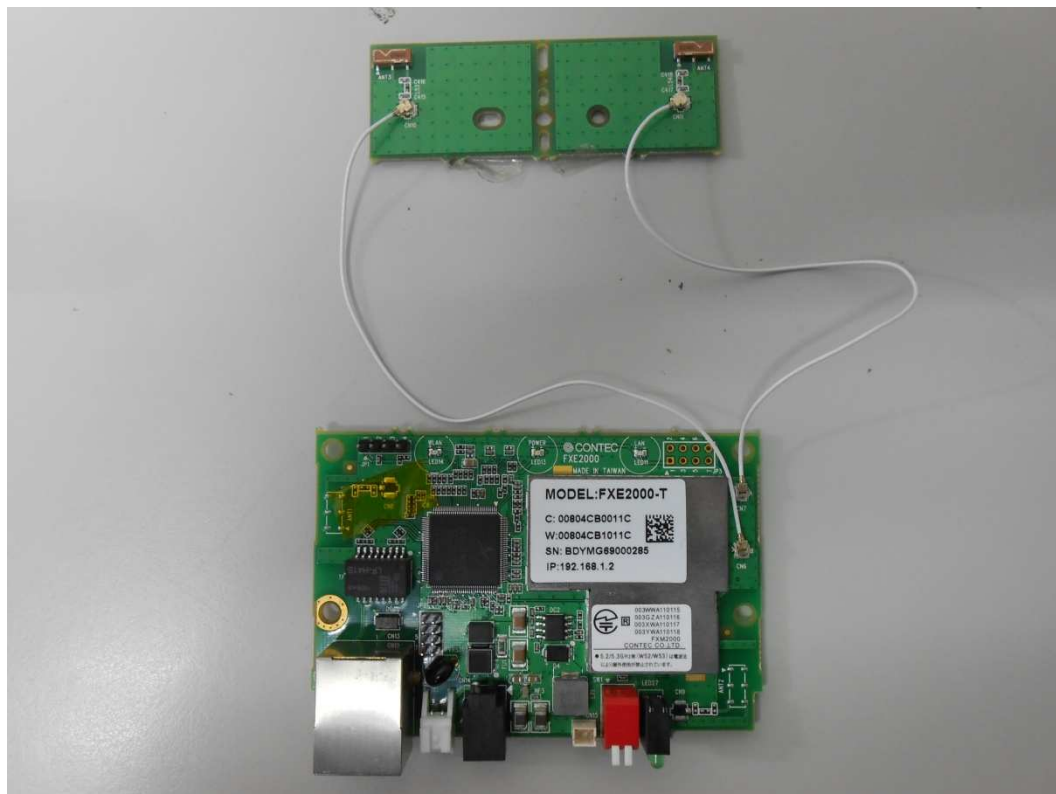
The Times of Inject Radar	Detect Channel (MHz)	Change Channel (MHz)	Pass/Fail
1	5500	5520	Pass
2	5520	5540	Pass
3	5540	5560	Pass
4	5560	5580	Pass
5	5580	5660	Pass

6. TEST SETUP PHOTO

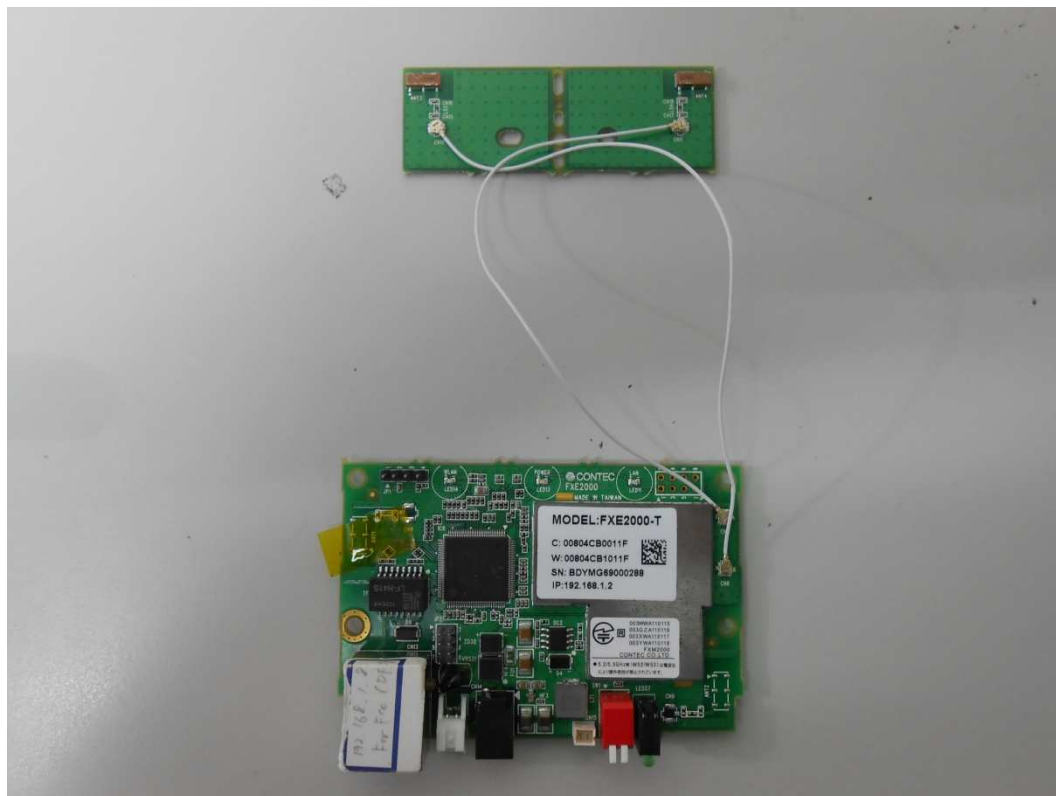
6.1 Setup configuration



6.2 Master photo



6.3 Slave photo





7. APPENDIX-A (EUT Web information)

The screenshot shows the 'Wireless LAN Manager' web interface in a browser window. The browser address bar shows 'http://192.168.0.1/wifi_system.cgi'. The page title is 'Wireless LAN Manager' and the firmware version is 'FXE2000-G - Firmware Version : 1.03'. The main content area is titled 'ステータス - 機器情報' (Status - Device Information) and displays the following details:

ローダバージョン	1.00.00 (2011-02-28)
ファームウェアバージョン	1.03.06 (2012-02-24)
プロダクト ID	70
機器 ID	0x00000008
製品名	FXE2000-G
国識別番号	841 (U.S.)
有線 MAC アドレス	00-80-4C-B0-01-1F
無線 MAC アドレス	00-80-4C-B1-01-1F
IP アドレス	192.168.0.1
サブネットマスク	255.255.255.0
デフォルトゲートウェイ	

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8. APPENDIX-B (EUT Log file)

```
_____  
/____|/___\| \|||_  _||____|/____|  
|____|_|_|||\||  ||  |____|||____  
\____|\____/|_|_|  ||  |____|\____|
```

U-Boot 1.1.4

DRAM:

sri

ar7240_dds_initial_config(146): python ddr init

TAP VALUE 1 = 0xd, 2 = 0xd [0x3: 0x17]

32 MB

Top of RAM usable for U-Boot at: 82000000

Reserving 269k for U-Boot at: 81fbc000

Reserving 192k for malloc() at: 81f8c000

Reserving 44 Bytes for Board Info at: 81f8bfd4

Reserving 36 Bytes for Global Data at: 81f8bfb0

Reserving 128k for boot params() at: 81f6bf00

Stack Pointer at: 81f6bf98

Now running in RAM - U-Boot at: 81fbc000

id read 0x100000ff

Flash: 256 sectors

Flash: 16 MB

BOARD IS NOT CALIBRATED!!!

In: serial

Out: serial

Err: serial

Net: ag7240_enet_initialize...

Fetching MAC Address from 0x81feb380

: cfg1 0xf cfg2 0x7114

eth0: 00:80:4c:b0:01:1f

eth0 up

eth0

Booting image at 9fd70000 ...

Image Name: Linux Kernel Image



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Image Type: MIPS Linux Kernel Image (lzma compressed)

Data Size: 685609 Bytes = 669.5 kB

Load Address: 80002000

Entry Point: 801ce000

Verifying Checksum ... OK

Uncompressing Kernel Image ... OK

No initrd

Transferring control to Linux (at address 801ce000) ...

Giving linux memsize in bytes, 33554432

Starting kernel ...

Booting AR7240(Python)...

**Linux version 2.6.15--LSDK-9.1.0.309 (NETWORK@CONTEC.CO.,LTD.) (gcc
version 3.4.4)**

flash_size passed from bootloader = 16

arg 1: console=ttyS0,115200

arg 2: root=31:05

arg 3: rootfstype=jffs2

arg 4: init=/sbin/init

arg 5:

**mtdparts=ar7240-nor0:256k(u-boot),64k(u-boot-env),6144k(rootfs),1024k(kern
el),128k(nvram),6144k(rootfs2),1024k(kernel2),512k(conf),1024k(log),64k(boar
d)**

arg 6: python

arg 7: mem=32M

CPU revision is: 00019374

Determined physical RAM map:

memory: 02000000 @ 00000000 (usable)

User-defined physical RAM map:

memory: 02000000 @ 00000000 (usable)

Built 1 zonelists

Kernel command line: console=ttyS0,115200 root=31:05 rootfstype=jffs2

init=/sbin/init

**mtdparts=ar7240-nor0:256k(u-boot),64k(u-boot-env),6144k(rootfs),1024k(kern
el),128k(nvram),6144k(rootfs2),1024k(kernel2),512k(conf),1024k(log),64k(boar**



d) python mem=32M

Primary instruction cache 64kB, physically tagged, 4-way, linesize 32 bytes.

Primary data cache 32kB, 4-way, linesize 32 bytes.

Synthesized TLB refill handler (20 instructions).

Synthesized TLB load handler fastpath (32 instructions).

Synthesized TLB store handler fastpath (32 instructions).

Synthesized TLB modify handler fastpath (31 instructions).

Cache parity protection disabled

PID hash table entries: 256 (order: 8, 4096 bytes)

Using 170.000 MHz high precision timer.

Dentry cache hash table entries: 8192 (order: 3, 32768 bytes)

Inode-cache hash table entries: 4096 (order: 2, 16384 bytes)

Memory: 30364k/32768k available (1509k kernel code, 2388k reserved, 326k data, 136k init, 0k highmem)

Mount-cache hash table entries: 512

Checking for 'wait' instruction... available.

NET: Registered protocol family 16

PCI init:ar7240_pcibios_init

ar7240_pcibios_init(295): PCI CMD write: 0x356

Returning IRQ 48

AR7240 GPIOC major 0

Registering original panic (write log) notifier.

JFFS2 version 2.2. (C) 2001-2003 Red Hat, Inc.

Initializing Cryptographic API

io scheduler noop registered

io scheduler deadline registered

Serial: 8250/16550 driver \$Revision: #1 \$ 1 ports, IRQ sharing disabled

serial8250.0: ttyS0 at MMIO 0x0 (irq = 19) is a 16550A

RAMDISK driver initialized: 1 RAM disks of 8192K size 1024 blocksize

loop: loaded (max 8 devices)

10 cmdlinepart partitions found on MTD device ar7240-nor0

Creating 10 MTD partitions on "ar7240-nor0":

0x00000000-0x00040000 : "u-boot"

0x00040000-0x00050000 : "u-boot-env"

0x00050000-0x00650000 : "rootfs"

0x00650000-0x00750000 : "kernel"



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0x00750000-0x00770000 : "nvram"
0x00770000-0x00d70000 : "rootfs2"
0x00d70000-0x00e70000 : "kernel2"
0x00e70000-0x00ef0000 : "conf"
0x00ef0000-0x00ff0000 : "log"
0x00ff0000-0x01000000 : "board"
NET: Registered protocol family 2
IP route cache hash table entries: 512 (order: -1, 2048 bytes)
TCP established hash table entries: 2048 (order: 1, 8192 bytes)
TCP bind hash table entries: 2048 (order: 1, 8192 bytes)
TCP: Hash tables configured (established 2048 bind 2048)
TCP reno registered
TCP bic registered
NET: Registered protocol family 1
NET: Registered protocol family 17
802.1Q VLAN Support v1.8 Ben Greear <greearb@candelatech.com>
All bugs added by David S. Miller <davem@redhat.com>
ar7240wdt_init: Registering WDT success
VFS: Mounted root (jffs2 filesystem) readonly.
Freeing unused kernel memory: 136k freed
init started: BusyBox
starting pid 12, tty "": '/etc/rc.d/rcS'
AG7240: Length per segment 1536
AG7240: Max segments per packet 1
AG7240: Max tx descriptor count 40
AG7240: Max rx descriptor count 252
AG7240: fifo cfg 3 01f00140
AG7240CHH: eth0 MAC Address... 00:80:4C:B0:01:1F
+++++ FXE2000-G (70,2013) - Firmware Version: 1.03.06 (2012-02-24)
Setting PHY...
LAN: Link up (100Mbps full duplex)
device eth0 entered promiscuous mode
Set static IP address 192.168.0.1/255.255.255.0
LAN port speed: Auto-Negotiation
Mongoose web server v.3.0 started on port(s) 80 with web root
[/usr/www,/tmp=/tmp/files]



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```
---> (LocalGroup) ap,ap 0,RF,100,11NAHT20 BINT 100 DTIM 1
rc.wlan up (args=1)
asf: module license 'Proprietary' taints kernel.
ath_hal: no version for "adf_os_mem_zero_outline" found: kernel tainted.
ath_hal: ver.0.9.17.1 (AR5416,AR9380,REGOPS_FUNC,WRITE_EEPROM,11D)
ath_rate_atheros: (C) 2001-2005 Atheros Communications, Inc.
ath_dfs: (C) 2005-2006 Atheros Communications, Inc. (ver.2.0.0)
ath_dev: (C) 2001-2007 Atheros Communications, Inc.
ath_pci: ver.0.9.4.5 (Atheros/multi-bss)
AR5416: WLAN MAC Address... 00:80:4c:b1:01:1f
ath_get_caps[4108] rx chainmask mismatch actual 3 sc_chainmak 0
ath_get_caps[4083] tx chainmask mismatch actual 3 sc_chainmak 0
wifi0: Atheros 9280: mem=0x10000000, irq=48 hw_base=0xb0000000
Country Code: 841 (BOARD ctry: 841)
VAP device ath0 created
Added ath0 mode master
Configuring RF...
<---
Enabled radar detection on 100ch(5500MHz)
Start DFS wait period on 100ch(5500MHz)
osif_vap_init: vap up
device ath0 entered promiscuous mode
Making Topology File...
+++++ Init End (2011-01-01 00:00:18 JST) +++++
starting pid 676, tty ": '/sbin/getty ttyS0 115200'

Login: Enabled radar detection on 100ch(5500MHz)
End of DFS wait period

Login: root
Password:
Login Pass

#
#
#
```



Found on channel minDur = 0, filterId = 0
Found on channel 5500
dfs_noI_addchan: new NOL channel 5500

Radar found on channel 100 (5500 MHz)

WLAN: DFS 100ch(5500MHz) -> 104ch(5520MHz)

Changing to channel 104 (5520 MHz) chanStart 75

Enabled radar detection on 104ch(5520MHz)
Start DFS wait period on 104ch(5520MHz)

#
End of DFS wait period

#
Found on channel minDur = 0, filterId = 0
Found on channel 5520
dfs_noI_addchan: new NOL channel 5520

Radar found on channel 104 (5520 MHz)

WLAN: DFS 104ch(5520MHz) -> 140ch(5700MHz)

Changing to channel 140 (5700 MHz) chanStart 92

Found on channel minDur = 0, filterId = 0
Found on channel 5520

Radar found on channel 104 (5520 MHz)

WLAN: DFS 104ch(5520MHz) -> 108ch(5540MHz)

Changing to channel 108 (5540 MHz) chanStart 78



**Enabled radar detection on 108ch(5540MHz)
Start DFS wait period on 108ch(5540MHz)**

**#

End of DFS wait period**

**#

Found on channel minDur = 0, filterId = 0
Found on channel 5540
dfs_no_addchan: new NOL channel 5540**

Radar found on channel 108 (5540 MHz)

WLAN: DFS 108ch(5540MHz) -> 136ch(5680MHz)

Changing to channel 136 (5680 MHz) chanStart 89

**Found on channel minDur = 0, filterId = 0
Found on channel 5540**

Radar found on channel 108 (5540 MHz)

WLAN: DFS 108ch(5540MHz) -> 112ch(5560MHz)

Changing to channel 112 (5560 MHz) chanStart 81

**Enabled radar detection on 112ch(5560MHz)
Start DFS wait period on 112ch(5560MHz)**

**#

End of DFS wait period**



Found on channel minDur = 0, filterId = 0
Found on channel 5560
dfs_nol_addchan: new NOL channel 5560

Radar found on channel 112 (5560 MHz)

WLAN: DFS 112ch(5560MHz) -> 140ch(5700MHz)

Changing to channel 140 (5700 MHz) chanStart 92

Found on channel minDur = 0, filterId = 0
Found on channel 5560

Radar found on channel 112 (5560 MHz)

WLAN: DFS 112ch(5560MHz) -> 116ch(5580MHz)

Changing to channel 116 (5580 MHz) chanStart 84

Enabled radar detection on 116ch(5580MHz)
Start DFS wait period on 116ch(5580MHz)

End of DFS wait period

Found on channel minDur = 0, filterId = 0
Found on channel 5580
dfs_nol_addchan: new NOL channel 5580



Radar found on channel 116 (5580 MHz)

WLAN: DFS 116ch(5580MHz) -> 132ch(5660MHz)

Changing to channel 132 (5660 MHz) chanStart 86

Found on channel minDur = 0, filterId = 0

Found on channel 5580

Radar found on channel 116 (5580 MHz)

WLAN: DFS 116ch(5580MHz) -> 132ch(5660MHz)

Changing to channel 132 (5660 MHz) chanStart 86

Enabled radar detection on 132ch(5660MHz)

Start DFS wait period on 132ch(5660MHz)

#

#

#

#

End of DFS wait period

#

#

Found on channel minDur = 0, filterId = 0

Found on channel 5660

dfs_nol_addchan: new NOL channel 5660

Radar found on channel 132 (5660 MHz)

WLAN: DFS 132ch(5660MHz) -> 136ch(5680MHz)

Changing to channel 136 (5680 MHz) chanStart 89



Found on channel minDur = 0, filterId = 0

Found on channel 5660

Radar found on channel 132 (5660 MHz)

WLAN: DFS 132ch(5660MHz) -> 136ch(5680MHz)

Changing to channel 136 (5680 MHz) chanStart 89

Enabled radar detection on 136ch(5680MHz)

Start DFS wait period on 136ch(5680MHz)

#

#

#